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10/629,707	07/30/2003	Shigekazu Okamura	Q76679	5358

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EXAMINER

LOUIS JACQUES, JACQUES H

ART UNIT PAPER NUMBER

3661

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,707

Applicant(s)

OKAMURA ET AL.

Examiner

Jacques H Louis-Jacques

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>73003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Abstract of the Disclosure

1. The abstract of the disclosure is objected to because it is not descriptive of the claimed invention. A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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3. Claims 7 and 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirai et al [5,798,727].

Shirai et al '727 discloses an obstacle recognition system for vehicle. According to Shirai et al, there is provided a radar (3) for scanningly irradiating electromagnetic waves over a predetermined angular range around a subject vehicle on which said apparatus is mounted (column 2), detecting the electromagnetic waves reflected from objects lying around said subject vehicle (column 2), and outputting detected distances from said subject vehicle to said objects lying around said subject vehicle and directions of said objects from said subject vehicle (column 2); and a recognition unit (5) for outputting, based on the detection results of said radar, a relative position and a relative speed, or a rate of change of the relative position, of each of said objects lying around said subject vehicle with respect to said subject vehicle (columns 2 and 4); said recognition unit comprising: an object detection section for detecting positions of said objects by using detection points data obtained by said radar, and calculating object positional data representative of the positional data of said objects (column 3); an object position estimator for estimating a position of each object detected in the past which should currently be detected, based on the past positional data of that object (abstract, columns 2 and 3); a window setter for setting a prescribed window in such a manner as to surround the estimated position of each object output by said object position estimator (column 4); and an object tracker for determining the current positional data of an object by using the detection points data contained in the window set by said window setter, and calculating a relative speed of

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that object to said subject vehicle by using the positional data of that object detected in the past (columns 4 and 5). See also columns 11 and 12.

Furthermore, as described in column 2, Shirai et al discloses that said object detection section does not use the detection points data which were used to calculate the object positional data in the current processing of said object tracker.

In column 1, and more particularly columns 2 and 4, Shirai et al discloses that said recognition section further comprises a column detection points determiner for determining whether the respective detection points data are column detection points data representative of data arranged in the running direction of said subject vehicle, and wherein said object tracker does not use the column detection points data in its processing based on the detection results of said column detection points determiner. See also columns 9 and 10.

4. Claims 7 and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Shirai et al [6,553,283].

Shirai et al '283 discloses a method and apparatus for recognizing shape of road. According to Shirai et al, there is provided a radar (5) for scanningly irradiating electromagnetic waves over a predetermined angular range around a subject vehicle on which said apparatus is mounted (abstract, columns 1-2 and in particular column 3), detecting the electromagnetic waves reflected from objects lying around said subject vehicle (columns 1-2 and in particular column 3), and outputting detected distances from said subject vehicle to said objects lying around said subject vehicle and directions of said objects from said subject vehicle (column 3); and a recognition unit (43) for

outputting, based on the detection results of said radar, a relative position and a relative speed, or a rate of change of the relative position, of each of said objects lying around said subject vehicle with respect to said subject vehicle (columns 3 and 4); said recognition unit comprising: an object detection section for detecting positions of said objects by using detection points data obtained by said radar, and calculating object positional data representative of the positional data of said objects (columns 5 and 6); an object position estimator for estimating a position of each object detected in the past which should currently be detected, based on the past positional data of that object (abstract, columns 2 and ; a window setter for setting a prescribed window in such a manner as to surround the estimated position of each object output by said object position estimator (columns 6, 8 and 11-12); and an object tracker for determining the current positional data of an object by using the detection points data contained in the window set by said window setter, and calculating a relative speed of that object to said subject vehicle by using the positional data of that object detected in the past (columns 11-14).

Furthermore, as described in column 2, Shirai et al '283 discloses that said object detection section does not use the detection points data which were used to calculate the object positional data in the current processing of said object tracker.

Shirai et al '283 also discloses that said recognition section further comprises a column detection points determiner for determining whether the respective detection points data are column detection points data representative of data arranged in the running direction of said subject vehicle, and wherein said object tracker does not use the column detection

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points data in its processing based on the detection results of said column detection points determiner. See also columns 8 and 11-12.

Shirai et al '283 further discloses a curved road detection points determiner for determining whether the respective detection points data are curved road detection points data representative of data arranged along a curved road, and wherein said object tracker does not use the curved road detection points data in its processing based on the detection results of said curved road detection points determiner. See columns 9 and 10 and figures 2, 6-7.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirai et al [5,798,727] in view of Nishimura et al [5,754,099].

Shirai et al '727 does not particularly teach the curved road detection points. Nishimura et al, on the other hand, discloses an obstacle warning system for a vehicle. Nishimura et al discloses, among other features, a curved road detection points determiner for determining whether the respective detection points data are curved road detection points data representative of data arranged along a curved road, and wherein said object tracker does not use the curved road detection points data in its processing based on the detection

results of said curved road detection points determiner. See columns 3 and 4 and figures 5-6, 13-15 and 22-23. Thus, it would have been obvious to one skilled in the art at the time of the invention to be motivated to modify the obstacle recognition system for vehicle of Shirai et al by incorporating the features from the obstacle warning system for a vehicle of Nishimura et al because such modification, as suggested by Nishimura et al, would provide a more reliable and accurate obstacle detection system

Allowable Subject Matter

7. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art does not particularly teach that the recognition unit further comprises a stop detection points determiner for determining, by the use of information about said subject vehicle, whether each of the detection points data is a piece of stop detection points data representative of the data of a stopped object detected, or a piece of moving points detection data representative of an object other than a stopped object, and wherein said object tracker calculates, based on the determination results of said stop detection points determiner, a current positional data of an object, by using the stop detection points data contained in the window set by said window setter when a difference between a relative speed of that object with respect to said subject vehicle detected in the past and a speed of said subject vehicle detected in the past is less than a prescribed value, but by using the moving detection points data contained in the set window when a difference between a relative speed of that object with respect to said subject vehicle and a speed of said

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subject vehicle both detected in the past is equal to or greater than the prescribed value, and said object tracker also calculates a current relative speed of that object with respect to said subject vehicle by using the current and past positional data of that object.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5467283	Butsuen et al	Nov. 1995
5689264	Ishikawa et al	Nov. 1997
5745870	Yamamoto et al	Apr. 1998
6243024	Yambuchi et al	Jun. 2001
6583752	Samukawa et al	Jun. 2003
6590521	Saka et al	Jul. 2003

Each of the above cited prior art references is considered to be very pertinent to Applicant's claimed invention. Therefore, Applicant's is strongly suggested to carefully consider each of these references in reply to this office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques H Louis-Jacques whose telephone number is 703-305-9757. The examiner can normally be reached on M-Th 6:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 703-305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jacques H Louis-Jacques
Primary Examiner
Art Unit 3661

/jlj

Jacques H. Louis-Jacques
JACQUES H. LOUIS-JACQUES
PRIMARY EXAMINER